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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/181, 021 10/27/98 YOSHIOKA Y 51270-245583

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ROGER R WISE
PILLSBURY MADISON & SUTRO
725 SOUTH FIGUEROA STREET
SUITE 1200
LOS ANGELES CA 90017-5443

EXAMINER

ARMSTRONG, A

ART UNIT	PAPER NUMBER
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2741

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DATE MAILED:

05/03/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)
	09/181,021	YOSHIOKA ET AL.
	Examiner	Art Unit
	Angela A. Armstrong	2741

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1) Responsive to communication(s) filed on 27 October 1998.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-27 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are objected to by the Examiner.

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) All b) Some * c) None of the CERTIFIED copies of the priority documents have been:

1. received.

2. received in Application No. (Series Code / Serial Number) _____.

3. received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

14) Notice of References Cited (PTO-892)

15) Notice of Draftsperson's Patent Drawing Review (PTO-948)

16) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.

17) Interview Summary (PTO-413) Paper No(s). _____.

18) Notice of Informal Patent Application (PTO-152)

19) Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

1. **Claims 1, 3, 5, 8, 9, 11, 13, 16-20, and 24-27** rejected under 35 U.S.C. 102(e) as being anticipated by Kageyama (US Patent No. 5,955,693).

Kageyama discloses an apparatus and method for converting an input to output a signal that is modified according to parameters and information from a stored model signal (col. 7, lines 45-55). The system is structured with a CPU, a hard disk drive and capabilities for connecting to a host station through a communications network.

Regarding claims **1, 5, 9, 11, 17, 18, 20, 25, 26 and 27**:

“analyzer device that analyzes....components in the input voice signal...” refer to Kageyama col. 6, lines 35-67 continuing to col. 7, lines 1-23;

“....derive a parameter set of an original frequency and original amplitude...” refer to Kageyama col. 6, lines 35-67 continuing to col. 7, lines 1-23;

“memory means for memorizing pitch information...reference signal...” refer to Figure 6(B) and col. 4, lines 60-67 and continuing to col. 5, lines 1-2;

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“memory means for memorizing amplitude information....reference signal...” refer to Figure 6(B) and col. 4, lines 60-67 and continuing to col. 5, lines 1-2;

“modulating means for modulating frequency ...according to pitch information from memory means...” col. 6, lines 59-67 continuing to col. 7, lines 1-23;

“modulating means for modulating amplitude...according to amplitude information from memory means...” col. 6, lines 59-67 continuing to col. 7, lines 1-23;

“mixing means for mixing...to synthesize output voice signal having a pitch different from that of the input voice signal and influenced by that of the reference signal” refer to claim 1, col. 8, lines 36-54 and col. 7, lines 24-40;

“mixing means for mixing...to synthesize output voice signal having timbre different from that of the input voice signal and influenced by that of the reference signal” refer to claim 1, col. 8, lines 36-54 and col. 7, lines 24-40.

2. Regarding claims 8, 16, and 24:

“means for separating a residual component...” refer to col. 6, lines 59-65;

“means for adding the residual component to the output voice signal” refer to col. 7, lines 24-35.

3. Regarding claims 3, 13, and 19 “memory means for memorizing primary pitch information...” refer to Kageyama Figure 5(B) and col. 4, lines 13-34;

”...secondary pitch information representative of a fractional pitch fluctuating relative to the discrete pitch...” refer to col. 4, lines 13-34.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 4, 14, and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kageyama.

Regarding claims 4, 14 and 22, "...detecting a pitch of the input signal based on results of extraction..." refer to Kageyama col. 7, lines 1-23.

"switch means ...detecting means does not detect pitch...outputting an original of input voice signal...It is noted that Kageyama does not specifically disclose a switch means for outputting an original of the input voice signal in situations in which a pitch is not detected from the input signal. However, it would have been obvious to output an original signal in cases in which a pitch is not detected from the input signal to avoid large fluctuations in the pitch of the signal, because such a modification would provide for smooth transitions as the parameter information is synthesized for the purpose of reducing the unnaturalness of the synthetic signal.

5. **Claims 2, 6, 10, 12, and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kageyama as applied to claims 1, 5, 9, 11, and 17 above, and further in view of Matsumoto (US Patent No. 5,847,303).

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Regarding claims 2, 6, 10, 12, and 21: it is noted that Kageyama does not specifically disclose "...control parameter effective to control a degree of modulation of ..." Matsumoto discloses a voice processing apparatus which modulates an input voice signal into an output voice signal according to a set of parameters. Specifically, at Figures 9 and 10 and col. 11, lines 3-26, Matsumoto discloses an embodiment in which a voice change parameter table of filter coefficients to control spectrum shape of varying pitch ranges for the purpose of providing...more realistic sounding conversion between male and female voices.

Therefore, to the extent that Kageyama does not disclose control parameters to control the degree of modulation of parameters to modify an output signal, it would have been obvious to one of ordinary skill at the time of invention to modify the signal apparatus of Kageyama to implement control parameters for controlling the degree of modulation of the input signal for the purpose of providing more realistic sounding conversion between male and female voices, as suggested by Matsumoto.

6. Claims **7, 15, and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kageyama as applied to claims 1, 9, and 17 above, and further in view of Matsumoto (US Patent No. 5,963,907).

Regarding claims 7, 15, and 23, it is noted that Kageyama does not disclose "varying the volume of the output signal to...emulate volume variation the reference signal ". Matsumoto discloses a voice converter that implements parameter shifting of an input voice signal and utilizes the volume information to improve the quality of the output signal. Specifically, at col.

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4, lines 39-67 continuing to col. 5, lines 1-61, Matsumoto teaches monitoring the volume level of an output signal, comparing it to the volume of a target signal, and adjusting the volume level of the output signal to match the volume level of the target signal for the purpose of compensating for the nonuniformities of volume reduction and unnaturalness due to signal conversion (Matsumoto col. 5, lines 59-61).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Matsumoto (US Patent No. 5,621,182) discloses an apparatus in which a memory device stores information of a reference signal and a processor modifies the volume and pitch of the signal according to the volume and pitch of an actual singer.

Gibson et al. (US Patent No. 6,046,395) discloses a method for shifting the timbre and/or pitch of an input signal.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 703-308-6258. The examiner can normally be reached on Monday-Thursday 6:30-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on 703-308-4825. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-308-6306 for regular communications and 703-308-6296 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

AAA
April 25, 2000



Richemond Dorvil
Primary Examiner